
Time to Write

Letters and Science Program in Writing Across the Curriculum
University of Wisconsin-Madison

Writing Like Scientists: A Writing-Intensive Course in Zoology/Botany

Jeff Baylis, Zoology

Field and laboratory courses in the sciences are natural vehicles for teaching the research and communication skills necessary to the scientific cycle of knowledge. I co-teach a 2-semester writing-intensive Zoology/Botany capstone course that takes 18 junior and senior biological sciences majors through all stages of a field research project in modern biology. Students do background research on a topic; prepare a research proposal; organize a field trip to Everglades National Park; collect, record, and analyze data; and present results in a talk and a scientific paper.

Prior to the trip, each student prepares a 45-minute oral presentation on one of the Florida habitats we will visit and a 3-page summary of the talk with a list of references. This exercise provides the class with vital information on the various biomes we will visit. More importantly, it teaches students how to use reference materials effectively and how to organize and present diverse information coherently and clearly.

In addition, each student prepares two or three 1-page proposals of possible field research projects. The proposal must clearly state an hypothesis, the organisms involved, and the methods and formal logic of the project. This exercise teaches students to state problems in a formal,

logical framework and to think constructively about the critical design of experiments. Students present proposals in 15-minute sessions; faculty may require revision and further review.

Former students who have gone on to graduate school refer to this writing-intensive course as "the defining experience of their undergraduate educations."

During the field trip (taken prior to the spring semester), each student keeps a field notebook with a daily log of travels, expenses, and natural history notes as well as the raw data for the project. Keeping notebooks teaches students to record methods, information, and ideas effectively. The notebooks are ungraded but faculty examine them periodically.

Students further develop their oral communication skills at our "campfire roundtables." These sessions require

them to review, examine, and discuss their work in progress. This dialogue helps students work out their ideas and focus more effectively on a specific research problem.

After the trip, early in the spring semester, faculty meet with students to help them organize and analyze their data. Each student also presents a 30-minute talk in the form of a scientific paper based on the field project.

A final series of exercises is designed to introduce students to the practices of professional writing in the sciences. We provide students with the "Instructions to Authors" from the journal *Animal Behavior* as a guideline for the paper format. Then, they submit their polished research drafts to the faculty, who act as editors for the class publication, *Journal of Sub-Tropical Field Biology*.

Faculty send out each paper to two student reviewers. Each student has to provide written reviews of two papers and receives two student reviews of his or her own paper. To supplement

(Continued on page 2)

In This Issue

Director's Chair.....	2
Resources for WAC Teachers.....	3
Book Review.....	3
FYI: New Writing Requirements.....	4

The Director's Chair

Welcome to the first edition of *Time to Write*, a newsletter from the L & S Program in Writing Across the Curriculum (WAC). Through this occasional publication, we hope to share ideas for incorporating writing into courses across the curriculum, encourage discussion, and showcase writing activities designed by faculty.

Given these goals, I can't think of any better way to launch our first issue than with the cover article by Jeff Baylis. It describes an integrated and challenging series of writing assignments in a writing-intensive course in field biology co-taught by Baylis of Zoology and Don Waller of Botany.

Faculty occasionally ask me why they should take the time to incorporate significant amounts of writing into their courses. Professor Baylis' article offers some answers to this question. Carefully designed writing assignments can help students learn to think precisely, analytically, and critically about course materials--and to think in ways characteristic of a particular discipline. Moreover, by making writing central to our courses, we can help make writing part of the culture of undergraduate education at Madison--a key goal of the University's ambitious new writing requirements.

I hope you enjoy the newsletter and I invite your ideas and questions.

--Brad Hughes, Director
L & S WAC Program

Tips for Using a CLASS PUBLICATION

● *Use written "Journal Guidelines" to introduce the conventions of writing in your discipline.*

● *Construct a peer review exercise in which students are journal "reviewers."*

● *Ask students to incorporate ideas from the class publication into a class discussion or writing assignment, such as a research paper.*

● *Come take a look at the WAC Program's copies of class publications from American Indian Studies, Botany/Zoology, and Art History.*

Science Writing, *continued*

peer review, which is understandably incomplete, faculty review each paper and the two reviews and make final recommendations.

Students thus receive considerable feedback on their work in progress. Final revisions are due at the end of the semester. Papers are re-reviewed by the editors and those accepted for publication are printed and spiral-bound as a volume of the *Journal of Sub-Tropical Field Biology*.

The publication of the bound journal is an essential part of the course; it gives the students a concrete sense of accomplishment and completion. Each student receives a copy of the bound journal, a copy is placed in the biology library, and a copy is sent to the Natural History Museum at Everglades National Park.

By the end of the semester, students demonstrate increased confidence and critical ability, which results in dramatically improved writing and speaking skills. While the review and evaluation process sometimes taxes busy faculty schedules, the generally high quality of the student work demonstrates the value of our writing-intensive approach.

This course encourages students to use their entire undergraduate education in biology and the liberal arts in the pursuit of original research. We regularly receive letters praising the course from student graduates in Ph. D. programs. Many refer to it as the defining experience of their undergraduate educations.

Time to Write

Time to Write is the newsletter of the Letters and Science Program in Writing Across the Curriculum at the University of Wisconsin-Madison. Correspondence should be addressed to *Time to Write*, L & S Program in Writing Across the Curriculum, UW-Madison, 6185 Helen C. White Hall, 600 North Park Street, Madison, WI, 53706.

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Resources for WAC Teachers

New On Our Shelves . . .

Since the Madison WAC Program began in 1984, Program staff have reviewed pedagogical books and journals across the disciplines for articles on using writing in content courses. Some of the journals we regularly review are

- *Journal of Geography*
- *Mathematics Teacher*
- *The American Biology Teacher*
- *College Teaching*
- *The History Teacher*
- *Journal of College Science Teaching*
- *Teaching of Psychology*
- *Teaching Philosophy*
- *Physics Education*
- *Teaching Statistics*
- *Journal of Chemical Education*
- *College English*
- *Teaching of Sociology*

We've put together an extensive collection of material on a range of topics: planning a writing-intensive course, designing formal and informal assignments, teaching the research process, incorporating peer review, responding to student writing effectively and efficiently. Here are some recent articles:

Beall, H. "Literature Reading and Out-of-Class Essay Writing in General Chemistry." *Journal of Chemical Education* 70.1 (1993): 10-11.

Blackey, Robert. "Word to the Whys: Crafting Critical Book Reviews." *The History Teacher* 27.2 (1994): 159-66.

Brown, Lewis Michael, et al. "A Comprehensive Model for Teaching Writing and Oral Skills in the Geology Curriculum." *Journal of Geological Education* 41 (1993): 151-54.

Hansen, W. Lee. "Teaching a Writing-Intensive Course in Economics." *Journal of Economic*

Education 24.3 (1993): 213-18.

Moore, Randy. "Writing to Learn Biology: Let's Stop Neglecting the Tool that Works Best." *Journal of College Science Teaching* Mar./Apr. 1994: 289-95.

Rickabaugh, Cheryl A. "The Psychology Portfolio: Promoting Writing and Critical Thinking about Psychology." *Teaching of Psychology* 20.3 (1994): 170-72.

Werne, Stanley J. "Taking Rough Drafts Seriously." *Teaching Philosophy* 16.1 (1993): 47-55.

The bibliography of our files lists titles and organizes them by discipline. These disciplines include

- Biology
- Chemistry
- General Sciences
- Geography
- Geology
- History
- Mathematics
- Philosophy
- Psychology
- Sociology
- Statistics

We also have bibliographical listings of articles on journaling, responding to student writing, and peer review.

We hope that you'll take advantage of these files. If you'd like to peruse them, make an appointment with us. If you'd like a copy of our bibliography for your discipline or a selection of articles on a certain topic, let us know. Drop a request in the campus mail to Rocco Marinaccio at the English Dept. in Helen C. White, or send an email message to rmarinac@students.wisc.edu.

The Bedford Guide to Teaching Writing in the Disciplines: An Instructor's Desk Reference. Rebecca Moore Howard and Sandra Jamieson. Boston: Bedford / St. Martin's, 1995.

The Bedford Guide is a comprehensive reference work for instructors interested in including writing in their courses. It responds to the concerns such instructors typically share by providing a thorough and practical discussion of a range of pedagogical issues and techniques.

Each of its chapters focuses on a specific topic, such as creating a syllabus; designing writing assignments, journals, and essay exams; teaching the research process; facilitating collaboration and peer review; and evaluating student writing. These chapters contain a wealth of sample assignments and other course materials from a variety of disciplines that can be easily adapted by individual instructors.

Extensive annotations highlight the various features of these samples, and they provide especially useful insight into the many sample writing assignments (including short essays, research papers, and journals). Each chapter concludes with a bibliography for further reading, and an appendix lists additional resources relevant to specific disciplines.

All in all, *The Bedford Guide* is a broadly useful text with a notably practical focus, and it would be particularly helpful to the instructor new to writing-across-the-curriculum teaching. It is available at the University Bookstore in General Reference.

For Your Information...

A summary of the new writing requirements from Tom Schaub, Professor of English and past Chair of the Implementation Committee for the New Communication Requirements:

University Requirements: 5-6 credits in communication skills taken in two courses:

Course A: Freshman year

Course B: Must follow Course A and be taken at any time prior to graduation.

Letters and Science Requirements: A sequence of four courses in communication skills:

Course #1: Freshman year. Satisfies Course A.

Course #2: Bascom Course, to be taken before the student accumulates 60 credits. Automatically satisfies Course B. All courses satisfying Course B may not, however, satisfy the L & S requirement for a Bascom course.

Course #3 and #4: Two writing-intensive courses, taken in junior and senior years.

As of now, University requirements will affect first-year students entering in Fall 1996. L & S requirements will be phased in over the next several years.

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If you'd like to add a colleague's name to our mailing list or to remove yours, just tear off this sheet and send it to Rocco Marinaccio in the English Dept., Helen C. White, 600 North Park Street.

Name _____

Campus Address _____

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